DOCUMENT RESUME

ED 062 973 JC 720 129

AUTHOR Bloomberg, Jerome
TITLE An Investigation of the Relative Effectiveness of the Basic Mathematics Review Program at Essex Community College.
INSTITUTION Essex Community Coll., Md.
PUB DATE 71
NOTE 9p.

EDRS PRICE MF-$0.65 HC-$3.29
DESCRIPTORS Basic Skills; *Course Evaluation; *Individualized Instruction; Instructional Improvement; Instructional Innovation; *Junior Colleges; *Mathematics Instruction; Remedial Courses; *Remedial Mathematics

ABSTRACT

Basic Mathematics Review (BMR) is a remedial non-credit course at Essex Community College (Maryland) being taught on an individualized basis. Following diagnostic testing and placement, instruction utilizes programmed materials, tutors, and self-tests. Evaluation of the new individualized BMR and comparison with the traditional remedial course resulted in several conclusions: (1) students succeeding in BMR achieved significantly higher in credit mathematics courses than students not required to take BMR; (2) students who did not pass BMR, but took credit math courses, failed to achieve above "D" grades; (3) a greater percentage of students re-enrolled after failing BMR than those who failed the traditional course; (4) withdrawal percentages in credit math courses were lower for BMR graduates than for those not required to take BMR; (5) a smaller percentage of students passed the individualized BMR than the traditional remedial course; and (6) students who re-enrolled in BMR after failing had about the same rate of success as first-time students. (RN)

ED 062973

U.S. DEPARTMENT OF HEALTH,
EDUCATION & WELFARE
OFFICE OF EDUCATION
THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL OFFICE OF EDUCATION POSITION OR POLICY.

AN INVESTIGATION OF THE RELATIVE EFFECTIVENESS OF THE BASIC MATHEMATICS REVIEW PROGRAM AT ESSEX COMMUNITY COLLEGE

JC 720 129

Jerome Bloomberg
Assistant Professor of Mathematics
Essex Community College
Baltimore County, Maryland 21237
Summer 1971

UNIVERSITY OF CALIF.
LOS ANGELES

JUN 27 1972

CLEARINGHOUSE FOR
JUNIOR COLLEGE
INFORMATION

I. Background

Essex Community College is a two-year public co-educational institution offering day and evening classes to both part-time and full-time students. The school has maintained an open door policy to all the citizens of the community which it serves; that community being a section of Baltimore County, Maryland which is predominantly blue collar.

Basic Mathematics Review (BMR) is a three semester hour non-credit course provided for and required of those students whose high school grades, course content, or SAT scores indicate a need for additional preparation for the credit mathematics courses which will meet their curricular needs. In February, 1970, the Mathematics Department at Essex under the chairmanship of Mr. C. Norman Dreisch abandoned a traditional classroom approach to BMR and instituted a math lab environment in which students work at individual carrels using programmed materials exclusively.*

The individualized approach to BMR requires that an entering student be given diagnostic tests to determine his starting position in the program. After testing and placement the student is counseled individually to determine his choice of credit mathematics courses and a prescription is written indicating the required segments from BMR and the approximate times needed

* The primary source of these materials was Programmed Algebra, Parts 1 and 2 by Alwin and Hackworth.

for completion. The student then begins working with these materials at his own pace. To each class of approximately 50 students, two instructors are assigned with their total responsibility in BMR being to serve as tutors when students encounter material they do not understand or problems they cannot solve. All clerical responsibilities (i.e., issuing and correcting tests, keeping performance records, etc.) are handled by full-time para-professional help. In addition, a skills counselor is assigned to each class to work with those students whose problems indicate basic difficulties in Reading or Study Skills.

Throughout each unit the student takes self tests to measure his progress. When the student feels he is prepared, he requests a unit test from the para-professional which he completes at his own pace. The test is graded immediately and is returned to the student by one of the instructors who works with the student to correct and analyze any errors. A grade of 80% is required of the student to progress to the next unit. If this grade is not attained, the student reviews the material from the unit(s) which he and the instructor feel are the cause of his deficiency. This procedure is continued and the student is re-tested until the deficiencies have been corrected.

Students who complete their prescriptions before the end of a given semester are free to leave the course or may continue with supplementary materials. These students are given "S" grades enabling them to begin their credit courses in mathematics during the next semester.

Students who fail to complete their prescriptions are given either "W" or "I" grades and are required to continue in BMR the next semester. Students who are close to completion can arrange to finish their required materials between semesters. In the Spring Semester of 1970 only, a "U" grade was used to indicate that the student made little or no progress toward completing his obligation in BMR. (Beginning with Fall, 1970, the "S" grades were subscripted to indicate the credit courses for which the student had qualified.)

This paper represents the first serious attempt to collect, analyze, and disseminate data relating to Basic Mathematics Review during its early developmental stages.

II. The data

A. The traditional approach

1. Student performance in BMR using the traditional approach (Fall 1969)

Grade	Freq.	%
S	94*	53.7
U	52	29.7
W	27	15.4
I	2	1.2

2. Performance in credit math courses (Spring 1970) of students who passed the traditional BMR (Fall 1969)

Grade	Freq.	%	Cum. %
A	3	4.6	4.6
B	9	13.6	18.2
C	24	36.3	54.5
D	10	15.1	69.6
F	7	10.6	80.2
W	12	18.2	98.4
I	1	1.6	100.0
Total	66*		

3. Performance in credit math courses (Spring 1970) of students who did not complete BMR (Fall 1969) **

Grade	Frequency
C	2
W	1

4. Performance in credit math courses (Spring 1970) of students never enrolled in BMR

Grade	Freq.	%	Cum. %
A	41	13.2	13.2
B	76	24.4	37.6
C	78	25.1	62.7
D	20	6.4	69.1
F	24	7.7	76.8
W	61	19.6	96.4
I	11	3.6	100.0
Total	311		

5. Performance in BMR (Spring 1970) of students continuing BMR

Grade	Frequency
U	2

* For various reasons, 28 students who passed BMR did not continue with credit Math courses.

** For various reasons, these students were allowed to enroll in credit Math courses without the BMR prerequisites.

B. The individualized approach

1. Student performance in BMR using the individualized approach (Spring and Summer 1970)

Grade	Freq.	%
S	91	34.6
U	34	12.9
W	31	11.8
I	107	40.7

2. Performance in credit math courses (Fall 1970) of students who passed the individualized BMR (Spring or Summer 1970)

Grade	Freq.	%	Cum. %
A	5	8.3	8.3
B	15	25.0	33.3
C	18	30.0	63.3
D	4	6.7	70.0
F	5	8.3	78.3
W	12	20.0	98.3
I	1	1.7	100.0
Total	60		

3. Performance in credit math courses (Fall 1970) of students who did not complete BMR (Spring or Summer 1970)

Grade	Frequency
D	2
I	1
W	7

4. Performance in credit math courses (Fall 1970) of students never enrolled in BMR

Grade	Freq.	%	Cum. %
A	27	9.2	9.2
B	58	19.7	28.9
C	70	23.7	52.6
D	30	10.2	62.8
F	24	8.1	70.9
W	64	21.7	92.6
I	22	7.4	100.0
Total	295		

5. Performance in BMR (Fall 1970) of students continuing in BMR

Grade	Frequency
S	8
I	3
W	9

III. Some conclusions

The data which has been collected for this paper provides some positive conclusions relating to the individualized Basic Mathematics Review course:

1. Students succeeding in the individualized BMR achieved significantly higher in credit mathematics courses than students not required to take BMR. This is in sharp contrast to the traditional BMR "graduates" who achieved somewhat lower in credit courses than the students who were not required to take BMR.

2. All of the students who did not pass the individualized BMR but took credit math courses anyway failed to achieve above "D" grades in their credit courses. This indicates that BMR may at least provide a necessary condition for success in credit math courses.

3. Of the 172 students who did not succeed in the individualized BMR, 20 re-enrolled in the course. This is in sharp contrast to the 81 students not passing the traditional BMR, 2 of whom re-enrolled in BMR.

4. Withdrawal percentages in credit math courses for the individualized BMR graduates were slightly lower than for

those not required to take BMR. Apparently the "work at your own pace" aspect of BMR does not effect the student when he re-enters the pace of the traditional classroom.

On the non-positive side, we have the following:

1. A significantly smaller percentage of students passed the individualized BMR than passed the traditional BMR. This may indicate that the individualized BMR does not prepare its students for credit math courses better than the traditional BMR but only raises the standards for preparation; hence the individualized BMR gets better results from its graduates.

2. Continuing students in the individualized BMR had about the same percentage of success in BMR as students enrolled for the first time. It should be noted that the implications here are not necessarily negative.

In all, the data and conclusions indicate that the individualized Basic Mathematics Review course shows promise. However, what must follow this investigation is an attempt to determine the reasons why so many students fail to complete their prescriptions in BMR. We at Essex must determine whether or not the present system stifles some of our students or whether the causes of

their failures are unrelated to BMR. If the former is true, we must begin the most difficult task of all: to determine why the present system facilitates these failures and how to modify the system accordingly.